

# JACG FACE

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## From the Editor's Desk...

As we move through life we find our values, needs, and priorities constantly changing. What was most important to us once may now be barely a memory. The totally unforeseen may be at the moment dominating our actions, only to be replaced tomorrow.

It is with that philosophical perspective that I formally tell you that my personal affairs will prevent me from continuing in the role of editor of this newsletter. I say this with a variety of emotions. I have fierce pride in the publication we produce together. As I come in contact with other user groups around the country the respect for our work is in clear evidence. I ride on the coat tails of that image. I have met and continue to meet many fine people through this work. Several have come to be very personal friends.

So, fellow members, I am serving notice with many mixed emotions. I am hoping to continue as a regular contributor and even as a member of the newsletter staff but the facts don't change. It is my time to move on and your time to take the stern. Who among you will step forward and give it a shot? It's only just a little scary. It is a great education. You won't ever be alone and it is a great opportunity to expand your horizons.

I give you the words my barber gave me the other day: NEXT!

Frank Pazel  
Editor-in-Chief, JACG Newsletter

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## MARK YOUR CALENDARS!!

### JACG Meeting Schedule

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July 13, 1985

August 10, 1985

September 14, 1985

From The Conn.....

Who's on first? What's on second? I don't know's on third! Abbott and Costello, Atari, and you and me. Yep, things in the Atari world are definitely confusing. Last month I reported that Atari would not be attending the Consumer Electronics Show in Chicago in June. That information was correct at the time. Now, it seems that Atari WILL be attending the CES June show.

Apparently, Atari's surprise attendance at COMDEX was a big success for them in that they were able to take a lot of orders for the new machines, etc. So they have decided to be at CES and, so the rumor goes, got a special deal from the show's promoters to have a booth. I don't know. Things could change again milliseconds after this is written. In any case, I will be attending CES a week before our June meeting so whatever happens will be presented at that meeting.

In other CES news, a number of other companies have decided not to show up on the show floor. Instead, they will have hospitality suites at nearby hotels to conduct business. Companies that currently are not planning to exhibit at CES are Electronic Arts, Infocom, CBS Software and Spinnaker. There will probably be other companies that feel that the required financial and people resources needed to successfully have a CES exhibit outweigh the benefits of attendance, especially considering that they can probably get just as much mileage from having a hotel suite.

In the April Newsletter I wrote a slightly cynical account of how the new Atari has promised to support User Groups and how they have not come through. In that same piece, I talked about how numerous announcements have been made by Atari which have never (or yet) to come true. Neil Harris (the publisher of the Atari Explorer) has responded to that mini-tirade and in the process has given me a clue to the inner working of the JTari. He said that the current management of Atari waits to the last possible moment to make a decision. That way, they have a competitive edge on the decisions they make. Also, that explains why there is such little, no or misleading (contradictory) information coming out of Atari. Neil also asked what I would suggest? Here is my response to Neil Harris and the entire management team of the new Atari:

Neil: In a previous message you referred to the piece I wrote in the JACB newsletter and asked me, "what would I suggest?". Keep in mind that that piece was written in mid-March, before the West Coast Computer Faire and the WUN meeting. It was written out of frustration.

You must know that I want Atari to succeed. I have for 4 years and now, with the promise of new machines, I am even more zealous. However, the lack of information that comes out of Atari is very frustrating. Things are announced, then no news, then rumors, then cancellations, and on and on. What would I suggest?

Be straight with the users. If you are going to have a user ST purchase deal, say so, mention the dates, times, etc. and that way there will be no question. If it has not yet been decided, then say, by so and so date we will have a decision on that. Again, be straightforward with users.

As you know, Atari users are the most loyal people on the face of the earth. Please don't discourage them. We all want the same thing....for Atari to have outstanding products (the STs ARE outstanding), for the world (computer world, at least) to recognize the significance and value of Atari products and for Atari to succeed.

That was my message to Neil. I think most Atari Users share the same feeling of frustration yet, at the same time, wanting Atari to succeed very much. The previously announced introduction dates of the ST computers has slipped. Is it that unbelievable that such an undertaking as bringing out a brand new, superior product like the ST, might not take a little while longer that first thought? It sure gives the competition and the know-it-all press (like the NY Times, Wall ST. Jr.) a chance to jump all over Atari.

Sure, I can't wait to get my hands on an ST computer! And yes, I am frustrated with the lack of information that Atari makes available. But I know that, in a matter of weeks I will be happily writing this very column on an ST computer and will finally be able to say to all of the detractors of Atari computers (who for years have laughed when I sat down at the Atari keyboard), I TOLD YOU SO! Keep the Faith, at least a little while longer.

Arthur Leyenberger  
President, Jersey Atari Computer Group

"WHERE'S MY MORNING PAPER?"



**HAVE YOU RENEWED  
YOUR MEMBERSHIP?**

**CHECK YOUR MAILING LABEL  
FOR MEMBERSHIP EXPIRATION DATE**

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The West Coast Computer Faire  
By Arthur Leyenberger

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Good news for Atari computer users! Atari is on track with the production of the new XE and ST computers. This was one of the themes of the recent Atari Worldwide User Network (WUN) held in conjunction with the 10th West Coast Computer Faire in San Francisco. The XE computers have already been shipped to distributors and the ST machines will have been shipped by the time you read this. Good news, indeed.

For Atari users, the weekend consisted of two main events: the Computer Faire itself and the WUN kickoff meeting, both held in San Francisco. Although Atari did not have an exhibit at the Faire, they were kind enough to provide two local Atari User Groups with XE and ST computers, freebies, brochures and demo programs.

#### User Groups Pitch In

The San Leandro Computer Club (SLCC) and the Atari Bay Area User's Computer Society (ABACUS) both displayed the new line of Atari microcomputers at the Moscone Convention Center. This was the first showing to the general public of the computers manufactured by the new Atari Corporation.

Both the 8-bit and the 16-bit products were represented at the booths. A complete 520ST system was up and running, consisting of two 3-1/2 inch, 360K storage, mini-floppy disk drives, the new Atari analog RGB monitor and the two-button mouse. This was my first chance to get some actual hands on experience with the powerful 16-bit computer and I am excited. I was especially impressed with the mouse. Unlike the MacIntosh mouse that has an uncomfortable amount of rolling resistance, the ST mouse moved smoothly and felt natural in the hand. Since the mouse plugs into one of the joystick ports on the side of the machine, it won't be long before we see it as a peripheral to the older 800 and XL computers.

Two Atari 130XE computers, each with 128K of memory were displayed. Both XE computers were production units, sporting the new parallel bus (see photo), new keyboard and complete compatibility with the older 800 and XL series computers. DOS 2.5, being developed by OSS, was shown as was the RAMDISK software that uses a part of the 128K memory to simulate a very fast disk drive. The XE machines have a crisper feel than the current XL computers but I am sure I could easily get used to it.

Tom Bennett, "show coordinator" of SLCC had done all of the legwork to get Atari to come up with products and promotional material for the show. Bob Barton, vice president of SLCC, somehow-- he wouldn't tell me how-- managed to convince Atari Software president Sig Hartmann to provide a 520ST computer for a raffle. Tickets cost \$1 apiece, with all proceeds going to a local charity.

The ABACUS group was invited to attend the Faire by SLCC and together they had what looked like the most popular, and busy, booths at the entire show. Atari has promised user group support for several months and it is now starting to take shape. Not only did Atari provide the

machines, they have also hired a new User Group Coordinator to help User Groups everywhere.

His name is Dave Duberman, a name very familiar to many of you. He is now Atari's main User Group contact person. Dave has worked for Antic magazine and Synapse and is very knowledgeable about both the old and new computers. Dave was on hand at the Faire demonstrating the features and capabilities of several XE and ST computers. I'll mention more about how Dave will be helping User Groups later on.

#### Atari Comes Through

Atari also came through at the User Group meeting held at Antic. Sig Hartmann (software), Sam Tramiel (hardware), Leonard Tramiel, Neil Harris (Atari Explorer), Richard Fritch ("Mister ST"), John Skruch ("Mister 8-bit computer"), Dave Duberman (user group support), and Tom Brightman (Vice President of engineering) were all on hand to answer questions and show support. Joseph Lyons and Frank Schwartz from Enhanced Technology Associates, a music/software/hardware firm in New York City, were also present with multiple keyboards using the Atari computer to demonstrate the MIDI interface. They were friendly folks, willing to answer questions and explain the ins and outs of the digital music world. They also presented a 20 minute MIDI-Atari concert that was outstanding.

#### The Worldwide User Network

The seeds for WUN were probably planted in August 1984 at the first Taricon sponsored by MACE and CHAOS. There, AUGI (Atari User Groups International) was formed to help the user groups speak with one, solid voice with Atari and other manufactureres. An initial mailing to User Groups was done by AUGI last fall to obtain some financial support and interest. Unfortunately, the needed manpower and focus were not available by the few individuals trying to get AUGI off the ground so AUGI is currently in limbo.

Although still in its infancy, WUN is a semi-formal, non-commercial enterprise whose stated goals are the dissemination of Atari-related technical information, new product updates and general coordination of Atari users and User Groups.

The preliminary proposal is to have a board of directors made up of representatives from Atari, Digital Research, the CompuServe Atari SIG, Antic and three user group officers drawn from the East, Central and Western United States. Specifics are not yet available, but you will be hearing more about WUN from your User Group Officers.

As of March 20, 1985, over 125 User Groups have responded to the WUN questionnaire. Invitations to the WUN inaugural meeting on March 30 had been sent to all 125 of these respondees. Dozens of user groups were represented at the meeting. If your User Group has not yet joined WUN, get in touch with Antic for a questionnaire, complete it, and send it back, together with your club's newsletter. You will then be added to the WUN roster.

Other noted attendees at the WUN meeting included Bill Wilkinson of OSS, Ron Luks from SIG\*Atari, Mike Mock from Indus Disk Drives, Kirt Stockwell from MPP, Rob LaTulipe from Digital Research and Bill Holt from Broderbund.

## Atari Q&A

The best part of the WUN meeting, aside from the excellent salmon and champagne, was the chance to hob-nob with Atari executives and find out what is really going on. The question and answer session proved to be quite informative. Here are some of the highlights.

Sig Hartmann led off the session by saying that Atari has the best hardware on the market. After a hearty round of applause he finished the thought by saying that without software, they have nothing. Within the 2nd quarter of 1985, Atari will offer a wide range of software for both the XE and ST computers. These products will cover business, productivity, education and recreational categories. Sig also asked for software authors to keep Atari in mind as they are developing and writing their new products.

Sig drew a big laugh when he introduced Sam Tramiel by saying that Sam was more qualified to answer questions. It seems that if Sig gave an answer, he would still have to answer to Jack Tramiel but if Sam said it, it would be okay. Sam commented that the first of the 130XE computers were shipped during the last week of March, thereby making their previously announced schedule. The 520ST computer is still on schedule and will be shipped at the end of April or in early May.

Next, Dave Duberman and Neil Harris were introduced. Dave asked that User Group Presidents contact him if they feel Atari can do something for them. He mentioned that Atari does currently have a BBS (408-745-2504) and he looks forward to interacting with the User Groups. He also offered his own number (408-745-4204) and said that eventually he will be coordinating some type of Atari road show whereby Atari representatives will attend User Group meetings across the country giving demos and answering questions.

When asked if there will, in fact, be a 65XE, Sam Tramiel said that it is currently being shipped in Canada. The 130XE has been shipped in the United States and will be followed by the 65XE. John Skrutch was asked when the Learning Phone (previously called the Plato Cartridge) would be available and he said it would be out in May. The delay was apparently due to negotiations that had been taking place with Control Data. According to Skrutch, the Learning Phone will come with a free 1-year subscription and an hour of free connect time.

Asked about software pricing, Sig Hartmann said that most of the software will sell for under \$50. However, some of the more powerful programs will be under \$100. Sig was also asked who had bought the ST development packages. These packages consisted of a 520ST computer, two 3-1/2 inch micro floppy disk drives, a 15 megabyte hard disk, a RGB color monitor and a high-resolution green monitor. This system, costing over \$5000 and including development software, apparently has been purchased by most of the leading software vendors. The list of some 38 companies includes: ANALOG Computing, Infocom, Synapse, Broderbund, Microbits, Peripheral Product (MPP), Electronic Arts, Propose, SubLogic, Matrix Software, Lifetree and Hayden Software. There are also five machines in Europe being used for software development.

Sam Tramiel was asked about the 32-bit computer that Atari had announced would be introduced in Hanover, West Germany in mid-April. He said the machine is being worked on right now and will contain the National 32000 microprocessor. However, it will not be ready for the Hanover Show. Instead, it should be ready by June. Just about all of Atari's effort is being put towards getting the ST out the door. He also said that it may not be announced at the June Consumer Electronics Show because it really isn't a CES type of product. This machine is currently aimed at the vertical and specialized workstation market in the high-end personal computer category. Other computers already competing in this market include the AT&T Unix PC and the IBM AT.

Another question was raised concerning languages for the ST computer. According to Sig, Logo will be contained in ROM, within the ST computer. BASIC is currently being developed by Digital Research and will probably become available this summer. Forth will also soon become available. In fact, Forth was being demoed at the User Group booth at the Faire. Other languages currently planned are C and Assembler. Sig said that if there is sufficient demand for a language, Atari will produce it.

One User Group representative asked Sam Tramiel about what Atari plans to do about the education market. Sam responded by saying that plans are still being made. However, the school market looks very promising and that some effort will be made to enter that market at a later time. A separate department has already been set up to take care of the needs of the educational market.

Sam announced that Atari plans to spend 10 percent of their sales on advertising in response to a question concerning Atari's visibility. The first major ad campaign will probably begin sometime in June and Atari may use User Groups in some way as part of its advertising.

A question about Atari DOS 2.5 was raised. John Skrutch announced that DOS 2.5 is currently being boxed together with 1050 Disk Drives and is available to current owners of DOS 3.0. Every User Group will receive a copy of DOS 2.5 to be freely distributed (on non-commercial programs).

DOS 2.5 is very similar to DOS 2.0. The major difference is in the Format command. If the menu item "I" (format disk) is selected with a 1050 attached, the disk will be formatted in dual density (140K) format. Menu item "P" will allow you to format a single density disk even if one 1050 is attached. If no 1050 disk drives are connected to your system, the "I" option will format disks in single density format.

John also talked about Atariwriter+. He said it is basically Atariwriter, with just about everything they could think of or that has been suggested in the last two years. It includes 80-column editing (to work with the Atari 80-column monitor which will plug into the serial port), a 36000-word spelling checker, file compatibility with Atariwriter, a mail-merge function and built-in printer driver function.

## The BIG News

Sam Tramiel made an amazing statement in response to one of the questions. He said the current plan is to have the User Groups buy the first 520ST computers. Atari would then use these



first owners as the test market for the new machine by asking them to help to debug it. If a bug is found and a user suggests a workable fix, the user will be rewarded for his or her efforts. The plan may also include giving a rebate back to the User Group for each machine purchased. This plan may actually be in place by the time you read this.

Also, the 520ST is not currently scheduled to be sold through mass merchandisers like K-Mart and Toys 'R US.

### The Faire

The West Coast Computer Faire is the largest computer user show in United States. Over 300 exhibitors were showing software, hardware, peripherals and services in the brand new Moscone Center. The Faire itself has changed somewhat in the last two years. Before, it was primarily a hackers show and is well known for launching the careers of the Apple superstars, Wozniak and Jobs.

Now, such companies as IBM, AT&T, Epson, Kaypro, Apple and many others are attend, brining with them a certain business flavor. But there are still some interesting things to be seen, even for Atari users. As mentioned before, Atari did not attend but were well represented by the two local User Groups.

One of the most interesting booths was Microbits Peripheral Products (MPP). MPP has supported Atari owners for years and is one of the few "oldtimers" in this young computer business. They were showing everything from hard disks to inexpensive 1200 baud modems. MPP has two hard disks, a 5 megabyte and a 10 megabyte system. The 5 MB system will sell for under \$1000 and includes the hard disk interface, hard disk and software. The 10MB system will probably sell for under \$1200. If you already have a hard disk, then you can buy the hard disk interface for under \$250. I saw the 10MB system working with and 800XL and loading files is fast.

MPP will also be introducing a 1200 baud modem for the Atari that will sell for under \$200. That price will include terminal software. Kirt Stockwell, Technical Support Manager, also told me that they are currently working on a brand new telecommunications program that will run on everything from Atari STs to IBM PCs to Atari 800s. The hard disk systems and modem will be available by the time you read this.

Another product Kirt told me about was their Micronet networking system. This net will handle up to eight Atari computers running off of one set of peripherals. Standard Atari SIO peripherals may be used for a very cost-effective multi-station Atari setup. Kirt said that an eight-workstation arrangement with Atari XL computers, color monitors, one set of peripherals and Micronet would cost roughly \$3500, about one-third the cots of a similar Apple setup.

Another piece of hardware, appealing mostly to hackers, is a product called Microport. This is a breadboard which interfaces from the Atari computer to the real world. It plugs into the parallel port on either an XL computer or a 130XE and gives you eight control channels. It will sell for \$50 and be available by the time you read this.

Another intriguing product at the Faire was being exhibited by a small Oregon company named Covox. They have a voice recognition and voice synthesis unit for Apple, Commodore and Atari computers. Called the Voice Master, it lets you

record words in any language using your own pitch and accent and have the program later recognize and speak the words. Included in the \$90 price is another program called the Voice Harp. This program lets you perform, compose and write music simply by humming or whistling into the microphone. Seeing (and hearing) it in action is truly uncanny.

The Voice Harp lets you produce various tone qualities, different keys and multi-note harmonies. You can even see the notes scrolling on the screen on a musical staff as you hum or whistle. The results of your composition can be edited, saved and even printed. I can't wait to get my hands on the Voice Master to do a full-scale review.

Broderbund Software was at the Faire to recruit new programming talent to add to their already excellent stable of software authors. Their product development staff was available to talk with software developers and to present existing Broderbund products.

One person that many User Group members may already know is Bill Holt, the Product Development Ambassador. Bill's job is to travel around the country visiting User Groups to demonstrate Broderbund's software titles and to help recruit new talent. If Bill has not yet visited your User Group, feel free to give him a call at (415)479-1170. He will be happy to arrange a visit.

Spectrum HoloByte is a small company that makes an excellent submarine simulation for the IBM PC and compatibles called Gato. I have spent many hours searching for, and destroying, WWII Japanese Naval vessels. They have just announced a MacIntosh version and a high-level company source told be that they would have a version for the Atari ST computer by the end of the year. Gato is one game worth waiting for.

I enjoyed attending the West Coast Computer Faire and the Worldwide User Network Meeting. I think a lot of new, exciting information was obtained that clearly shows that Atari is here to stay and that they intend to support Atari users and User Groups. I also saw evidence that other software and hardware companies are finally beginning to take Jack Tramiel and the "JackIntish" seriously. It all adds up to good news for Atari users.

### The End

In Analog's attempt to bring you this information as accurately and timely as possible, this entire article has been written at 36000 feet, on a red-eye special flight from San Francisco to New Jersey. A Radio Shack Model 100 lap computer was used to write the article, whereupon it was uploaded to an Atari and printed using Atariwriter. Computers sure are productive tools!



LORD  
DEMONFIRE

WHERE ARE  
YOU?

## CHIPS CHIPS CHIPS CHIPS

by Donald Forbes - JACG

Some people never look under the hoods of computers. Others do. Some people never look under the hood of a computer. Others do. And what they see are chips and instruction sets.

### 6502

Under the hood of the Atari they see the Motorola 6502 chip, an eight-bit chip with zero-based addressing that makes it run fast for its 1.7 MHz cycle speed. (MHz is engineering shorthand for megahertz. Mega is Greek for big which is short for a million. The name of German physicist Heinrich Rudolf Hertz who lived briefly from 1857 to 1894 today means cycles per second.) The same chip drives the Apple and the Commodore and some other popular machines.

### 8088

In the IBM PC you will find Intel's 8088 and the last digit of the name tells you that it is an eight-bit chip. Cycle speed is 4.7 megahertz plus.

### 68000

In the Macintosh you will find Motorola's fast (8 MHz) 16-bit MC68000 chip, the same one that is slated for the Jackintosh with color and all.

### 8086

In the Wang PC you find Intel's 8086 chip, a cousin to the 8088, with 16 bits and about twice the cycle speed, or 8 megahertz.

### 68010

The AT&T Unix PC's Motorola 68010 operates at 10 MHz, faster than the IBM PC 80286 AT's 6 MHz and the standard IBM PC's 4 MHz. The 68010 also offers advanced features such as mainframelike virtual memory paging, which allows programs much larger than available memory to be used effectively by treating the hard disk as an extension of memory.

### Z80 AND OTHERS

In Tandy Corp.'s line of TRS-80 and other Radio Shack computers you have several choices. They include the 8088 as well as the 0.894 MHz 8-bit 6809E, the 2.4 MHz 8-bit 80C85, the 4 MHz 8-bit Z80A and the 8 MHz 16-bit Intel 80186.

You cannot claim mastery of your computer until you are familiar with its instruction set. And instruction sets are all alike--and all different. There is an accumulator, an execution register, a program counter, and a status register with various check bits to test for zero divide or negative numbers or register overflow. Programming consists largely of moving the contents of one register to the accumulator, perhaps adding the contents of another memory location to the accumulator, and then moving the result to a third memory location. Accumulator Load

and Accumulator Store are the most likely instructions.

These instructions have not changed much over the years. You did this on the old IBM 305 RAMAC (with the memory and speed of an elephant), the IBM 650 (the old biquinary computer that did decimal arithmetic in pairs of fives), on the transistorized IBM 1401, on the larger IBM 7070 (with its maze of indexing registers) and again on the IBM 360 (that pointed to the 360 degrees of the compass) with some 150 instructions in its instruction set, and once more on the IBM 370 (370 compass points?) with its 170 or so instructions. The Wang VS2200 had a similar instruction set (about 100 of its 150 instructions matched those of IBM one for one).

To keep up you should be prepared to master one new instruction set per year--even though it may take more than one year to become comfortable with a new instruction set.

Have you ever dreamed of a master instruction set that you could move from one computer to the next, converting each one into a master virtual computer with which you could establish a working relationship for at least a few years?

The language of such a virtual computer would have to be different from any computer language you have ever met before. First of all, it should be a building block language so that each instruction could be built up from existing instructions and then used in turn to build new instructions. In BASIC and PASCAL and FORTRAN and COBOL there is a fixed general purpose set of instructions. The new language should allow the set of instructions to be chosen and developed by the user to reflect the application, and should be highly specialized. It ought to be possible to build up the instruction set to the point where one instruction is the complete solution to the problem, and this result should be a program.

Secondly the language ought to be compiled for speed, but should also be interactive. Each new instruction should be made up a few of the existing instructions so that the program can be compiled in a few moments. Then the program could be tested, modified and recompiled until the user is satisfied with its performance. Then there would be no linking or loading, and the editor would be available without leaving the language.

Thirdly, the language should be geared to real control over the computer on which it runs, instead of making the computer a vehicle for an abstract model of the problem. This does not mean that the language should be system independent, but rather that it should be possible to redefine any function if necessary to resolve a machine compatibility difficulty. By providing an immediate ability to test each step in the development of a program, the user ought to be able to close the gap between expectation and experience.

Fourthly, the language ought to be modular and structured. Ideally, it would permit the principle of information hiding (which allows programs to be written at a high level and insulated from lower level details) to be taken to its logical conclusion. Lower level instructions should be coded and tested just once, and then used in different contexts. Higher level instructions could then be written in terms of lower level instructions without inquiring into the details of the latter. The language should be structured like PASCAL, and unlike BASIC or FORTRAN.

The new language would be quite a challenge if you have used BASIC before, mainly because you will have to decide for yourself some of the things that BASIC decides for you. If you have used a compiled language like PASCAL then the new language should let you develop well structured programs much more quickly. If you have ever used (or attempted to use) assembly language then the built-in assembler of the new language ought to be very simple indeed.

If such a dream language existed today, it is certain that neither academia nor the government nor the major corporations would have anything to do with it, or even admit to its existence. With their large investments in existing software and hardware, they would be glad to leave such heresy to the beard and sandal set.

However, if such a language could be developed, then it would have to be packaged properly. It would have to be dressed up in a Brooks Brothers three-button suit with a button-down shirt and regimental striped tie. It would also have to have an acceptable name.

There is the well known account of a soft-drink maker who invented ONE-UP and it failed. He then developed and marketed TWO-UP, which also failed. He was persistent, but when SIX-UP failed he withdrew from the business. The Japanese are reported to be working on the FIFTH-GENERATION computer, so if we give the new language a name like SIXTH it should become an instant success.

# RESTORING DAMAGED PROGRAMS LOADED FROM DISK by MARY P. RUSSOMANO - JACG

THE REPAIR STATION IS A PUBLIC DOMAIN PROGRAM BY JOEL GREENBERG THAT IS PRESENTLY AVAILABLE THROUGH USER GROUPS. IT REPAIRS 98% OF THE ERRORS THAT OCCUR WHEN A PROGRAM IS SAVED TO DISK. ERRORS SUCH AS A "164 ERROR" OR A "READY READY" PRINTED AFTER LOADING A PROGRAM FROM DISK ARE QUICKLY REPAIRED. ALSO, IN THIS DIFFICULT CATEGORY IS THE FRUSTRATING EXPERIENCE OF LOADING A PROGRAM FROM DISK TO SCREEN AND "READY" APPEARS, INDICATING THAT THE PROGRAM HAS BEEN "SUCCESSFULLY" RETRIEVED. HOWEVER, RATHER THAN A THE PROGRAM APPEARING AFTER IT IS LISTED, THE COMPUTER FREEZES AS SOON AS

"RETURN" IS PRESSED. THESE ERRORS ARE THE MEAT AND POTATOES OF THE REPAIR STATION.

FULLY DOCUMENTED ON THE DISK, THE REPAIR STATION REQUIRES ONLY A DIFFICULT ERROR, A BACKUP COPY OF THE DAMAGED FILE AND ENOUGH ROOM ON THE DISK TO REWRITE THE DAMAGED FILE AFTER IT HAS ELIMINATED THE OFFENDING LINE. JOEL GREENBERG RECOMMENDS THAT REPAIR STATION BE PLACED ON A DISK WITH ATARI DOS II 2.0. WRITTEN USING THE ABC COMPILER, IT WILL RUN WITH OR WITHOUT BASIC.

THE DOCUMENTATION STATES THAT THE REPAIR STATION WORKS BY READING THE DAMAGED FILE, SEARCHING FOR WHATEVER MAY CAUSE UNLISTABILITY AND REWRITING THAT FILE ON THE SAME DISK WITH THE SAME NAME PLUS THE EXTENDER, .FIX. ONCE REWRITTEN, IT IS POSSIBLE TO LOAD THE NEW FILE AND RUN THE PROGRAM. HOWEVER, NOT ALL FILES CAN BE LISTED. THE ERROR THAT MADE IT ORIGINALLY UNLISTABLE MAY BE IN THE STRUCTURE THAT RUNS THE PROGRAM. WHEN THAT IS REMOVED, THIS PARTICULAR PROGRAM MAY NOT RUN.

THE REPAIR STATION WILL ALSO REPAIR FILES THAT HAVE INTENTIONALLY BEEN MAKE UNLISTABLE UPON PROGRAMMING OR WHEN SAVED ORIGINALLY. IT DOES NOT AUTOMATICALLY REPLACE THE VARIABLE NAME TABLE WITH NEW CHARACTERS UNLESS THAT IS ABSOLUTELY NECESSARY. IT WILL SAVE A VALID TABLE WHEN IT FINDS ONE.

THE REPAIR STATION HAS PROVEN TO BE AN INVALUABLE TOOL TO ANY PROGRAMMER WHO WORKS LONG HOURS ON A PROGRAM OR SERIES OF PROGRAMS ONLY TO FIND AN IMPORTANT FILE DAMAGED. MY SINCERE THANKS ARE EXTENDED TO JOEL GREENBERG FOR WRITING THIS PROGRAM AND TO THE JERSEY ATARI COMPUTER GROUP FOR SHARING IT WITH ME.



## A PLEASING LOOK BACK

by Don MacLeay - JACG

The first strategy games for the Atari were limited in scope by the small memory available and graphically by the programmers' experience. But the market was hungry so despite character graphic animation and 'optimized' BASIC programs were written and distributed by entrepreneurs with access to the first machines. Some excellent gaming elements were captured in those space/war games.

Now we all have machines with more memory and a disk drive is taken for granted. If you share programs with friends you've been exposed to these programs that were the first step up from the Star Trek 8x8 grid but before Star Raiders blew them all away. The problem threatening these older games no longer being distributed is that while the program lives on in pass along disks the documentation which is an essential part of the game is lost.

### For the ATARI 800



A Strategic Simulation Game  
of War in the Far Future

By Don Ursem

ON DISKETTE: Requires 24K

Starbase Hyperion by Don Ursem was written in 1981 for Quality Software which, like many of the small software houses, has gone out of business. Don reacquired the rights to his program and was selling the disk and manual for \$5 at the May JACG meeting. My only disappointment with the package was the poor Xeroxing of the manual. Some pages were unreadable.

The action in Starbase Hyperion is on a 'radar' screen with redefined characters as spaceship symbols. Action is in turns with a later chance to save yourself in the computer controlled fight in the form of a flashing 'green screen'. The game has good depth for its type, very good sound effects and doesn't make you sit through long pauses. It runs without the interpreter on the 800XL. Intelligent algorithms keep you 'in the game'.

Don Ursem is insuring himself of fame, though not fortune, by making his game once again available to us.

Ed. note: Starbase Hyperion is available by direct mail for \$6, which includes mailing from:

Don Ursem  
37 Clover Lane  
Randolph, NJ 07869

It's the best software bargain you'll ever run into.

Thank You, Astra



As a result of correspondence with Mr. Drew Featherston, Plant Manager of Astra Systems, Inc., the JACG is the recipient of a new Astra 2001 dual disk drive. The machine has direct drive motors, is double sided and supports single or double density (up to 720Kbytes), and was furnished with SmartDOS.



The 2001 is a solid feeling, compact unit, entirely self-contained and has been used by several of our members since its arrival last month. Those who have used the machine are genuinely impressed by its performance. It has consistently loaded any program presented to it and is amazingly smooth and quiet. After running for extensive periods of time there is no evidence of excess heating. In short, we are pleased to have added this device to our equipment list. It will do yeoman duty in our disk librarians' hands.

We thank Mr. Featherston for his interest and appreciate the generosity of his company in providing us with their top-of-the-line product.



## TROUBLE IN BBS LAND

by Bill Schneider - JACG

Bulletin board services  
are besieged on all  
fronts-by crafty users,  
utility companies, and  
the federal government.

The above quote is from an editorial in the February, 1985 issue of PC WORLD. It details the legal case of Thomas Tcimpidis, a SYSOP who ran a free-access BBS in Los Angeles. "It seems that some unscrupulous person planted illegally obtained telephone credit card numbers on Tcimpidis's system. The phone company discovered this fact through their own BBS snooping program and called the police, who raided Tcimpidis's house, confiscated his personal computer, and charged him with being an accessory to the crime."

David Bunnell, the PC WORLD publisher, feels the key issue in this trial is the definition (function) of the SYSOP. His interpretation is as follows; If the SYSOP is the equivalent of a newspaper publisher, then they are responsible for any information posted on their system. However, if the SYSOP is considered a communications medium like those the that telephone companies and cable TV companies provide, then they cannot be held responsible for messages posted on their BBS.

Mr. Bunnell points out that, should the result of this case regard the SYSOP as a publisher, then the numerous BBS's around the country will most likely cease operation. This may apply to major companies as well. Compuserve and The Source do not have the means to constantly monitor their systems.

The end result is that the personal computer phenomenon and its potential to create new communications channels would be curtailed. Mr. Bunnell's feels that the PC community must fight all government interference and also the anarchists in their own ranks. This last group, who support the notion that long-distance phone access and software should be free are bringing the wrath of Big Brother down on all.

A related item appears in the March, 1985 issue of COMPUTE! magazine. Page 72 has an "open letter" from the Software Publishers Association addressed to User Group Presidents and BBS SYSOPs.

This letter states that the software industry is alarmed at the extent of the lawlessness involved in the unauthorized duplication and distribution of computer software. The S.P.A. has been involved in an "arms race" of copy-protection systems and litigation against offending companies, user groups, and SYSOPs. They warn that the F.B.I. has become increasingly involved in enforcing the U.S. Copyright Law.

The future of the BBS may be decided within the next few months. In the meanwhile the SYUSR's should act as co-SYSOP's on any

BBS they may call. If you see any messages regarding illegal telephone codes or offers of copyright software; yell (Y) for the SYSOP or leave a message (P) explaining the problem.



## EASTER EGG

Donkey Kong Jr. doesn't have to be next to impossible anymore thanks to this hidden "feature."

As soon as the game appears press the SPACE BAR. The game will pause. Hold down the SHIFT key and type in BOOGA (as in BOOGA-BOOGA). Press the SPACE BAR again to begin the game.

Pressing the letter K once will make you immune from everything but falling. Pressing the letter S will let you select any of the four screens.

Your assignment. If you know of a deep and hidden secret pass it along to the editor so we can all share in the wealth.

## Polaroid Disk Recovery Service

by Bill Schneider - JACG

N.Y. Times April 24, 1985

The Polaroid Corporation is offering a free service to rescue data on damaged disks. "A secret process and specially designed equipment has had nearly 100% success in restoring disks damaged by spilled coffee, jackets bent in desk drawers and eraser bits. The only failure was caused by a fingerprint. Some people have an excess of a skin chemical that causes oxides to detach from the disks mylar substrate."

Although (in most cases) a backup disk will be maintained for important data, this service could be an alternative to updating the latest backup to the current version. Its value to a damaged disk without a backup goes without saying.

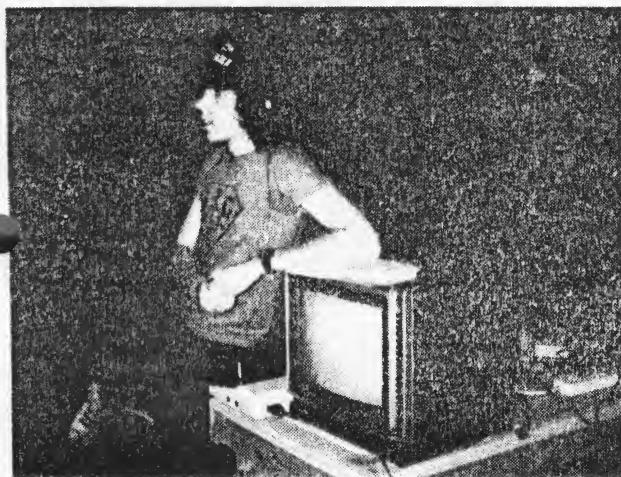
To use this service you must call the toll-free number (printed on each box) and they will send you a special mailer. You then provide the postage and mail the damaged disk to them in Cleveland. Polaroid will return the disk within 48 hours; they provide this postage. If your disk is irreparable a new disk is returned.

Since this service is available for Polaroid's Perfect Data Disks only, you might consider using these disks for your important records. Irregardless of which brand of disk you use, remember that touching the open section of a floppy disk can cause its absolute death.



# ATARI SAFARI

MAY MEETING



Steve Muccione addresses a point regarding his new program, "Keyboard Companion."



Atari Safari expedition leader Jerry Frese has the interest of his group while demonstrating some Sesame Street programs.



Effervescent Don Forbes animatedly shows why he is the high priest of friendly Forth.



If strings weren't your thing Nick Scalera got you straightened out with his lecture-demonstration.



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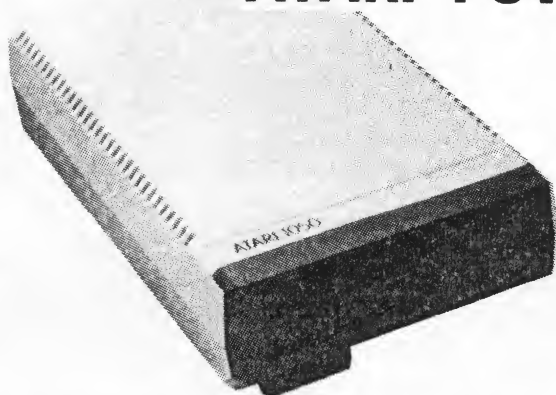
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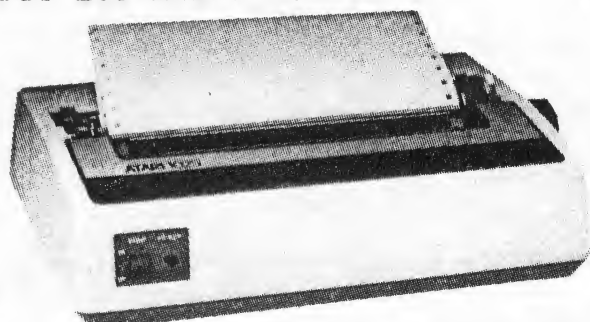
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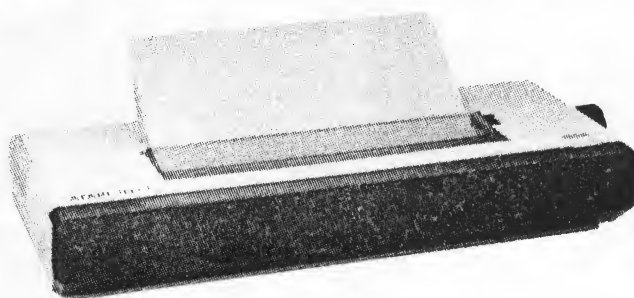
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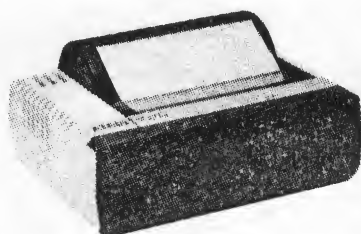
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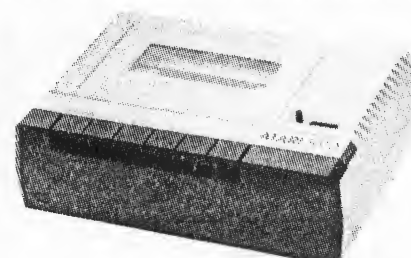
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## Byte-sized Programming by Tom Pazel - JACG

Has there ever been a time when you were writing a program that needed keyboard input, but you got tired of using INPUT with that darn '??' Would you like to have a fancy GRAPHICS 1 or 2 input routine in your program with a cursor and all? Well, dear reader, have I got a program for you.

Actually, the following program (subroutine, really) was written by me for a specific reason. I was asked to write it so that it could be used by visually handicapped students in my father's school. It seems (and rightly so) that some of these folks had trouble seeing the GRAPHICS 0 screen when asked to answer various prompts from within some programs. So, I was asked, wouldn't it be possible to display a prompting message in GRAPHICS 1 or 2 AND allow the user to type keys and display them on the screen (also in GRAPHICS 1 or 2), so that they are easily visible?

Being as egotistical and self-confident as I am, I said, "Sure, no problem!! Take me about 20-30 minutes to whip it out for ya!". Right. I don't think I'll speak that quick again. The following code took an embarrassingly long time for me to put together, but it does the job.

```
10 DIM IN$(480)
20 CHARCOL=0:CHARROW=0
30 GOSUB 32000
40 END
32000 REM Subroutine to allow for
32010 REM INPUT from a GRAPHICS 1
32020 REM Screen. Uses a "-" for
32030 REM the 'cursor'. Allows
32040 REM for Letters, Numbers,
32050 REM Backspace and RETURN
32060 REM Key (which ends routine).
32070 REM Builds a String
32080 REM from INPUT called 'IN$'.
32100 REM To set the initial cursor
position, make 'CHARCOL'=column and
'CHARROW'=row
32110 REM then 'GOSUB 32000'. Upon RETURN,
'IN$' will contain whatever was keyed...
32120 IN$="":CLOSE #1:OPEN
#1,4,0,"K":GRAPHICS 17
32130 POSITION CHARCOL,CHARROW:?
#6;"-";POSITION CHARCOL,CHARROW:GOTO 32190
32140 POSITION CHARCOL,CHARROW:?
#6;CHR$(KEY);
32150 ? #6;"-";IF KEY=126 THEN 32190
32160 CHARCOL=CHARCOL+1
32170 IF CHARCOL>19 THEN
CHARCOL=0:CHARROW=CHARROW+1
32180 IF CHARROW>23 THEN CHARROW=0
32190 GET #1,KEY
32200 IF KEY<32 THEN 32190
32210 IF KEY>32 AND KEY<48 THEN 32190
32220 IF KEY>57 AND KEY<65 THEN 32190
32230 IF KEY>90 AND KEY<126 THEN 32190
32240 IF KEY>126 AND KEY<155 THEN 32190
32250 IF KEY>155 THEN 32190
32260 IF KEY=155 THEN CLOSE #1:RETURN
32270 IF KEY=126 THEN 32300
32280 IN$(LEN(IN$)+1)=CHR$(KEY)
32290 GOTO 32140
32300 CHARCOL=CHARCOL-1
32310 IF CHARCOL<0 THEN
```

```
CHARCOL=19:CHARROW=CHARROW-1
32320 IF CHARROW<0 THEN CHARROW=0:CHARCOL=0
32330 POSITION CHARCOL,CHARROW
32340 ? #6;" ";
32350 POSITION CHARCOL,CHARROW
32360 IF LEN(IN$)<2 THEN IN$="":GOTO 32380
32370 IN$=IN$(1,LEN(IN$)-1)
32380 GOTO 32150
```

As you can see, the cursor is carried out via the underscore character. I sort of feel uneasy about 'publishing' this code, mainly because it is not exactly what one would call 'structured'. Probably the word 'garbage' fits it better as far as elegance and style go. If any of you wish to clean it up and/or make it more efficient, please do so. I would be interested in hearing about/seeing your results. I hope some of you can not only learn from it, but make good use of it as well.

As an aside, one gentlemen a few meetings back came up to me before we started and told me how much he had enjoyed the column the month before. That's the kind of thing that makes one WANT to continue doing something like this. I would like to hear more. Doesn't matter in the least whether it's good or bad. Tell me what you want to know more about. I am here to help. That's what this column and, more importantly, the JACG is all about!

Next month, I might cover some stuff dealing with CIO, with screen and disk and other nifty stuff like that there. In the meantime, always remember: If it has syntax, it isn't user-friendly.



\*\*\*\*\*  
**HAVE YOU RENEWED  
YOUR MEMBERSHIP?**

**CHECK YOUR MAILING LABEL  
FOR MEMBERSHIP EXPIRATION DATE**

\*\*\*\*\*

MEMO TO: Jerry Frese - JACG  
FROM : Donald Forbes - JACG  
SUBJECT: Forth for Atari Safari  
DATE : 9 May 85

Thank you for the your kind invitation. Presenting Forth at the Safari must be considered a great honor, when I reflect on the many Nobel winners who have graced the podium of our auditorium.

A low-key approach would be most appropriate, considering the amount of space that Forth has received in the newsletter. Let Forth speak for itself. As an introduction it would be fitting to display briefly the Simulated Computer II program that was shown last year, because our many new members will certainly find it instructive. In the first place, the program was written in Forth. Secondly, it displays graphically the internals of every computer and anyone who has no interest in the internals of a computer will certainly never be attracted to Forth.

At the top left there is a keyboard with typing hands to enter the data. The top center shows the CPU with its registers. The lower portion shows the addresses in memory. The top right shows a small printer to the display the results of a computation.

We will run a small program to add 6 and 4 and display the answer. We start by loading the first number at location 12 by typing `LOAD12` and respond to the prompt `12:?` with 6 (and the demo displays this on the screen with a rushing white dot). We load the next by answering the `13:?` prompt with 4 and then `END` to indicate the end of data entry. We enter the program by answering the prompts with `LOAD`, `LOAD12`, `ADD13`, `STA12`, `OUT12`, `STP` and `END`. This is shorthand for: load program which will load register 12 to accumulator, add the contents of register 13, store the answer back in 12, output the contents of 12 to the printer, and stop.

The typing hands, the rushing white dot and the animated printer make for good theater.

With only twenty minutes to tell the whole story, I decided the best way would be to present the tutorial that accompanied the valForth turtle graphics package I bought two years ago. The various valForth packages can still be purchased from Mountain View Press, P O Box 4656, Mountain View CA or with a credit card call 415/961-4103. The combination of Atari's superb graphics, my 12-inch SONY color TV, and the speed of Forth should be enough to tell the whole story.

Above the screen I propose to place a sign: Is YOUR computer language INTERACTIVE and EXTENSIBLE? No other language for the micros meets these two criteria. The only other language I know about is the memory-eating FRED (for Framework Editor) language used in the spreadsheet package called FRAMEWORK (which lists for almost \$700 and sells for about half that) running on the Wang PC on my desk with an embedded IBM PC emulator

board for a total investment by my banking employer of several thousand dollars.

If your computer language is not interactive and extensible, are you living in the past and being threatened with obsolescence by the young folks who are racing up to pass you? At least the audience can stop and wonder.

After booting the valFORTH turtle graphics package, you can then enter `VLIST` which will instantly display all the commands at one's disposal. Entering `DECOMP` will immediately decompile them and show how they were constructed from other Forth commands (or label them as assembler language instructions). If you wanted this in BASIC or PASCAL or C, could you do it? If not, how many manuals would you have to search? Could you be sure of an answer?

Here comes the valFORTH demo.

Typing `8 GR. ON ASPECT` makes squares look square. `90 TURN` turns the dillo 90 degrees clockwise (valFORTH calls its turtle an armadillo). Then `30 DRAW 90 TURN 50 DRAW` moves the dillo. With `0 -60 DRAWTO` and `0 TURNTO` the dillo moves directly to a new point. `20 PHIL` fills part of the area. Then `0 0 PHILTO` fills the rest of the area. With these few commands we can draw a herald's shield and then use `FRAME` to draw large frame around the edge.

To specify the color we use the `PEN` command so that `2 PEN` will draw or fill in color 2. Next `3 PHPEN` will fill the pen with color 3. `WIPE` acts like a descending window shade to clear the screen, and `CENTER0` will return the dillo to the center of the screen and point in the 0 direction of the compass, in other words, directly North. `RPHIL` and `LPHIL` makes it possible to fill to the right or left.

We can draw a square with: `SQUARE DUPDRAW 90 TURN DUPDRAW 90 TURN DUPDRAW 90 TURN DRAW 90 TURN`; so that `20 SQUARE` followed by `45 TURN AND 20 SQUARE` will draw a square with 20 units on a side and then the same square at a 45 degree angle. Now that we have a square, we can then draw a fan by spinning the square by one of its corners. We can also make a spinning square that gets larger and larger as it spins around.

The `DRXOR` command provides some fanciful effects by switching all the bits, so that you can combine it with `WIPE` and as the window shade comes down the dark spots become light and the light ones dark--so you have a negative image of your positive original.

The current rage in business computers is the use of "windows" or "frames" so that you can have multiple images on the screen at the same time. valFORTH allows you to do graphics the same way if you specify the left, right, top and bottom edges with, for example, `-50 -10 30 -10 WINDOW` and then add a `FRAME` and a `DOT` in the middle. You can have multiple windows on the screen and `WIPE` them or fill them as you choose.



To top the demo, you can draw a rectangular solid in two-point perspective.

All that has been done, of course, is to introduce the vocabulary and merely scratch the surface. The graphics capabilities are available in all the Atari graphics modes. Once a graphics figure has been defined, it can be displayed in any or all of the graphics modes in any choice of color and then erased again by choosing black as the color. Once a display has been created, it can be called anywhere at any time just by invoking it by name.

This demo may not make anybody rich, but it will give everyone a new perception of the real meaning of those two crucial words in today's computer environment:

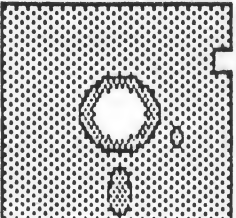
INTERACTIVE

and

EXTENSIBLE.

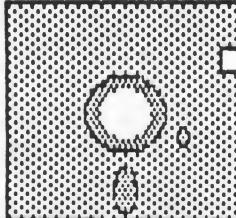
Hope you enjoy the show, Jerry.

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Three cheers to JACG's Dennis John for all of his very professional videotaping of the Trenton Computer Faire and his April meeting show, "How I Use My Computer." Those of us lucky enough to have seen these presentations appreciate the tremendous amount of work Dennis put into these mini-shows.

From your growing legions of admiring fans -  
Thanks, Cecil B. DeJohn!

## WILL YOU HELP?

282 Worcester Road  
Princeton, MA 01541  
May 23, 1985

Dear Sirs,

I need help and recommendations from you and your readers. I want to buy a color printer for my school to be used in art classes for dumping color pictures created using Koala Pad. Is there a printer which you would recommend? Which software should I use to accomplish this?

Also, in my school we have a micro-economic program which operates for 4 months of the school year. Students apply for, are interviewed, and are hired if they qualify, for over 200 jobs around the school. For this they are paid in a currency called Thaler. This currency they may spend or save at their Thaler bank.

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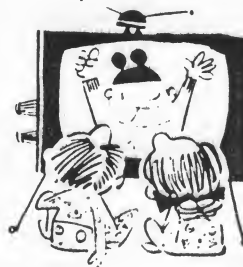
Does anyone know of, or want to create, the software which would accomplish these goals?

Thank you for your assistance.

Sincerely,

*William Brooks*

William Brooks



## PEEKs AND POKES

by Kenneth J. Pietrucha -JACG

In one of my previous columns I mentioned that a POKE 755,4 turned the printing on the screen up-side down. Although no one came up with any possible use for this particular POKE, I did receive a letter from Eli Tomlinson of the JACG, who suggested I tell the rest of the story connected with location 755.

Armed with Eli's letter and a copy of Dick Kushners book Basic Atari Basic, I wrote a small program to illustrate what happens when numbers from 0 to 3 are poked into this location. When you type in the program, make sure that the underlined words in lines 20 and 30 are typed in inverse video.

```

2 REM *****
3 REM POKE LOCATION 755 DEMO
4 REM KENNETH J. PIETRUCHA
5 REM J.A.C.G. 4-24-85
6 REM *****
10 FOR X=0 TO 3
15 GRAPHICS 0
20 ? "WATCH AS I POKE THIS
   LOCATION"
30 ? "WITH POKE 755,";X
40 FOR T=1 TO 1500:NEXT T
45 POKE 755,X
50 FOR T=1 TO 1000:NEXT T
70 NEXT X
80 POKE 755,2

```

When you run this program, lines 20 and 30 will appear on the screen; then here is what happens. First the original unaltered lines will appear, then after a short time delay, the program will do a POKE 755,0. The words that were in inverse video are now changed to regular video.

As it goes through the loop, a POKE 755,1 will cause the words that were typed in inverse video to disappear, and all you see is a blank space.

A POKE 755,2 is the normal default, so nothing happens with this one.

When we do a POKE 755,3 the words in inverse video now become inverse video blank spaces.

You can change the values of the loop to run from 4 to 7. The result is the same as 0 to 3, only the words are up-side down. Lines 40 and 50 are only for time delays, so you can see the before and after pokes.

To illustrate a practical application for this location I have written a short program which can be used as a sub-routine. I have combined POKE location 764, which I talked about in a previous PEEK & POKE column as the "Press Any Key to Continue" location, along with our current application, POKE 755. Together they create a program in which the prompt or some key words blink, or alternate between inverse and normal video.

```

4 REM *****
5 REM BLINKING TEXT
6 REM KENNETH J. PIETRUCHA
7 REM J.A.C.G.- 5-3-85
8 REM *****
10 GRAPHICS 0:N=0
100 ? " PRESS ANY KEY TO CONTINUE"

```

```

105 P=PEEK(764)
110 N=2-N:POKE 755,N:FOR Z=1 TO
    200:NEXT Z
115 IF P=255 THEN GOTO 105
120 POKE 764,255:POKE 755,2
122 PRINT :PRINT :PRINT
125 PRINT "CONTINUATION OF
    PROGRAM"

```

When you type in this program, make sure some of the words in line 100 are in inverse video.

The idea is to alternately poke location 755 with 0 and 2. When poked with a zero, all inverse video turns to normal video, and when poked with a 2, the inverse video returns to the way it was typed.

Line 110 is the key to the program's operation. The statement  $N=2-N$  causes the value of N to alternate between 0 and 2 each time it goes through the loop (line 115...GOTO 105). The first time through the loop N is the initialized value of 0 set in line 10. The answer to  $N=2-N$  when  $N=0$  is 2. So now 2 is poked into location 755. On the next trip through the loop the value of N is our previously calculated value of 2, so the answer to  $N=2-N$  is zero. This value is poked in location 755 and the process continues with the words in inverse video blinking on and off until any key is pressed. At this point P is not equal to 255, the loop is broken and the program continues.

I hope you have enjoyed these little demonstration programs as much as I have enjoyed writing them. Once again, if anyone has any ideas, applications, or requests let me hear from you. My address is 610 Springfield Ave., Cranford, N.J. 07016.

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IT'S ABOUT TIME...

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If the parameter field of the word contains a machine-language routine, the code field of the word contains its own parameter field address (PFA). The size of the parameter field is equal to the size of the machine-language routine it contains; in fact, the parameter field is the machine-language routine.

When NEXT loads the PC with the PFA, the machine-language routine of the parameter field is executed. The final action of the machine-language routine is to load the PC with the address of NEXT.

This is probably a good spot to mention the address interpreter, which is essential to the topic. Using my last example again, the address interpreter might be illustrated as follows. NEXT is the software routine that increments the IP. The consequence of incrementing the IP is that a new CFA is selected, which results in the PC being set to the machine language routine appropriate to the word being selected.

The actions just described are taking place all the time that Forth is turned on, regardless of the type of word selected by IP and regardless of the name of the program that is being executed. A program is always being executed so the address interpreter is always functioning.

In the case of a constant, the parameter field consists of a single memory cell containing the value of the constant. The code field contains an address which is always the same--that of a machine-language routine which FIG-Forth has labelled DOCON (do constant routine?). When this address is loaded into the PC by NEXT, the routine moves the value of the constant contained in the parameter field to the top of the stack.

The final act of the routine is to load the PC with the address of NEXT.

One type of variable, called a user variable, consists of an area of memory where variables are stored. The user pointer (UP) points to a base address. To access a desired memory cell, an offset value is added to the base address. This is the task of DOUSE (do user routine?), which then places the sum of the UP and the offset value onto the top of the stack. It then loads the PC with the address of NEXT.

In another type of variable, the parameter field consists of a single memory cell containing the value of the variable. The code field contains an address which is always the same--that of a machine-language routine that FIG-Forth has labelled DOVAR (do variable routine?).

When this address is loaded into the PC, DOVAR moves the address of the parameter field to the top of the stack. The address containing the variable, rather than the variable itself, is moved so that arrays (and strings) can be handled easily. Forth expects to find the address of the variable on the stack and is able to process it. DOVAR ends by loading the PC with the address of NEXT.

One of the values stored as a user variable is a dictionary pointer (DP). The DP contains the address of the next available space in the dictionary. It is updated each time a new word is created. Among other things, it is useful in the creation of an array.

An array is a list of variables. Forth handles an array in a forthright manner by increasing the size of the parameter field of a single variable to accommodate the additional variables.

The Forth word ALLOT adds the value selected by the programmer to the DP. The next word will start at the new address of the DP, and the parameter field of the single variable has been effectively increased. To access a particular memory cell of the array, add the amount of its offset from the PFA to the PFA.

An important feature of Forth is that once a word exists in the dictionary, it is there to be used. A later word can use an earlier word as part of its definition. A new task-performing word can be added to the dictionary by using words already existing in the dictionary. The words already existing are called previously defined words.

For words consisting of previously defined words, the code field contains the address of a machine-language routine that FIG-Forth calls DOCOL (do colon routine?). This routine performs two unique functions: It moves the contents of the IP to the return stack, and it moves the contents of the word pointer into the IP. Then it loads the PC with the address of NEXT. This illustrates the key to a basic and often repeated action in Forth. It consists of putting a new value in the IP, and saving the old value to come back to.

In the example shown, after the execution of DOCOL the IP will increment through the words in the parameter field of CAMEL. This action is called nesting, and works like a machine-language call instruction. Words can be nested successively many times.

The last word in CAMEL, as in all words consisting of previously defined words, is called SEMIS (for ;S). The purpose of SEMIS is to reverse the effect of DOCOL and get back to the original word. SEMIS is a word in its own right; it is a form of the return routine. SEMIS moves the top of the return stack into the IP, and then loads the PC with the address of NEXT. This action is called unnesting and works like a machine-language return instruction.

DOCOL and SEMIS are a matched set. This type of word always starts with a DOCOL routine and ends with a SEMIS routine.

Since each type of word requires a different address in the code field, how does Forth know which address to use when a new word is created? The answer is, it doesn't.

In the act of putting the program together, the programmer decides what kind of word it is to be. Then a compiler arranges the word into the proper format. A compiler is simply another Forth word--a program--with specific duties to perform. Forth has a separate compiler for each type of word. A compiler may be called into action by typing its name on the keyboard.

There are other compilers, and you can custom-build your own, but the table lists enough to give you the picture.

TYPE:	FOR:
CODE	a machine-language routine
CONSTANT	a constant
VARIABLE	a variable
USER	a "user" variable
:	begin new word definition
;	end a definition



A Forth compiler has two main tasks:  
 (1) During programming: It creates a new word in the dictionary.  
     = COMPILES  
     = <BUILDS  
 (2) During execution: it provides the instructions for the new word to follow.  
     = EXECUTES  
     = DOES>

When you type in the name of a word being compiled, it enters an input buffer, where it is part of the input data stream that the computer must sort out. Forth does this by searching the dictionary for a matching word. When the word is found, it is executed just like any other word. The result is that a new word is created at the next available location in the dictionary.

Compiling a new word is a relatively long process, with many steps, but it takes place during programming (or loading from disk), when time is not an important factor. Executing a word (a machine-language process) can be very fast.

I'd like to make several last points--in case you haven't noticed.

NEXT is a machine-language routine.

A machine-language routine always precedes NEXT.

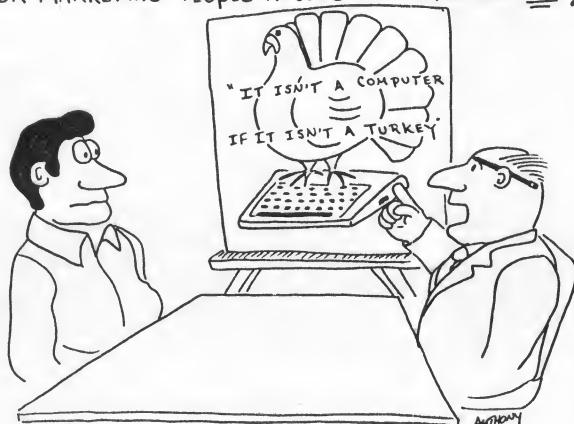
A machine-language routine always follows NEXT.

In other words, the high-level language stuff (no matter what the language is) is all a form of bookkeeping, or administration, and directs the activities of the PC, which ultimately has to do all the work.

I am a novice Forth user, and I may have made errors or unwarranted generalizations in this article. Don't be concerned--by the time you're aware of them, you'll already know enough that it won't matter.

\* \* \*

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# A MATHEMATICIAN'S GUIDE TO WATCHING SOAP OPERA

by Donald Forbes - JACG

You sprained your ankle. Your doctor told you to stay home for a couple of days and rest your foot. You have a chance to catch up with your reading.

You reach for your copy of the "Selected Papers of Saunders Mac Lane" looking for the article on "General Theory of Natural Equivalences" that he wrote with Samuel Eilenberg in 1945 that appeared in the Transactions of the American Mathematical, Vol. 58, pp. 231-294.

Your mathematical friends tell you the paper (which introduced category theory) ranks with Euclid's elements (which introduced geometry), with al-Khwarizmi's and Vieta's writings (which introduced algebra), with Descartes' appendix to his Discourse on method (which introduced analytic geometry), with Newton's Principia (which introduced the calculus) and Cantor's book on Transfinite Numbers (which introduced set theory).

"The subject matter of this paper is best explained by an example, such as that of the relation between a vector space  $L$  and its 'dual' or conjugate space  $T(L)$ ....In a metamathematical sense our theory provides general concepts applicable to all branches of abstract mathematics, and so contributes to the current trend towards uniform treatment of different mathematical disciplines. In particular, it provides opportunities for comparisons of constructions and the isomorphisms occurring in different branches of mathematics; in this way it may occasionally suggest new results by analogy."

You reach the point where the authors start discussing groups and observe that "this may be regarded as a continuation of the Klein Erlanger Programm, in the sense that a geometrical space with its group of transformations is generalized to a category with its algebra of mappings" and your mind starts to wander. The kids are in school. The wife is out shopping. You reach for the switch on the cable box that turns on the TV. You flip through the channels a couple of times. Nothing. A detergent commercial fades out, and there you find two people arguing on the screen. You are now in the twilight zone of Daytime Drama--the world of the soap opera.

The characters all have names that are easy to remember, like Bill and Frank and Jill and Jacqueline and Max and Maggie and Roger. Last names are hard to remember, and they rarely appear.

If you are used to Nighttime Drama, you may have trouble converting to Daytime Drama. You have become accustomed to look for the technicalities of the plot rather than the characters of the actors. In the Soaps the emphasis is on the actors themselves. Nighttime watchers expect the show to drive toward--and arrive at--a resolution. On the daytime shows the plot moves inexorably forward and then POSTPONES the resolution so that the story lines remain unresolved and the characters' situations still lie fraught with problems. If this drives the nighttime watcher crazy, it is only because he not does understand

that getting there is half the fun, and exploration of character is just as important as the resolution of the plot.

You don't see famous people on the Soaps. Sometimes someone like Elizabeth Taylor will make a brief appearance, but mostly they are just interruptions in the lives of the 'families' that the viewers have learned to live with.

Every show must provide at least one character we love to hate. A good villain is absolutely essential to a daytime drama, and sometimes he becomes its very backbone. We tune in week to week to see what new outrage he is committing now. In a happy marriage there is no drama, so the writers must invent a fatal illness for the happy spouse because otherwise there is no place for the story to go.

The story must come to a climax on Friday so that the audience will be sitting there Monday morning waiting for the next episode.

The Soaps are more realistic than the nighttime dramas. At night the hero never gets killed off because he is needed for the next episode; the heroine, of course, is expendable. But on the Soaps the writers are always prepared to 'drive the car over the cliff' if the actor quits for a better job or dies or fails to click with the audience. Soaps handle the controversial topics that nighttime drama prefers to avoid, such as incest and homosexuality and child abuse and the like. Suicide is a ticklish subject because no one involved in Daytime Drama wants to give the audience the idea that suicide is a solution to anything.

Unlike nighttime drama, there is little swearing on the Soaps. Most of the viewers simply do not swear and the writers try to respect their sensibilities. An actor may be permitted a 'damn' or 'hell' but only if the speaker is fairly bursting with emotion. 'My God!' is allowed only rarely and then the speaker must be under great duress, and is unlikely to be permitted more than once in a day's script. And Christ's name is never, repeat never, used as an expletive.

The writer needs a typewriter or even a wordprocessor as well a good dictionary, a copy of Roget's Thesaurus, a copy of Bartlett's Quotations, a recent World Almanac, a book on English usage such as Strunk and White's 'Elements of Style' and a word book that simply gives the spelling. The writer can go to the library for an encyclopedia but should have a copy of the Merck Manual and a one-volume medical encyclopedia to translate those technical terms. The most used phrase in daytime drama is probably 'subdural hemotoma.' He or she also needs a copy of the Book of Common Prayer and one of the revised Presbyterian marriage service.

The writer also needs a phone to call for technical expertise on courtroom or medical or police station procedure, lest an inadvertent error bring a flood of irate and sardonic mail from the doctors and lawyers and policemen and firemen who watch the show.

Another thing the writer must master is now to work with 'subtext.' He must remember that the dialog is merely an overlay for what is going on between the participants. For example, Romeo is serenading Juliet at her balcony when Juliet drops a rope ladder. When they are joined on the balcony, the

following dialog ensues:

ROMEO  
Do you see yonder cloud that's almost in shape of a camel?

JULIET  
By the mass, and 'tis like a camel, indeed.

ROMEO  
Methinks it is like a weasel.

JULIET  
It is backed like a weasel.

ROMEO  
Or like a whale?

JULIET  
Very like a whale.

In other words, the subtext is the emotional base beneath the words and the urgency riding on it. You must master the art if you ever hope to write for the Soaps. If you ever had a craving for Writing For The Soaps then the book by Emmy Award nominee Jean Rouverol (at both the Florham Park and Morris County public libraries) is just what you need. The hardest fact the writer must face is that he is writing to the wind. The graffiti that defaces the statues of ancient Egypt will live for the ages, but the network tapes that air the Soaps are recycled after thirty days. You may be subjected to interminable reruns of 'I Love Lucy' but the past episodes of All My Children and General Hospital and Search For Tomorrow and Days of Our Lives and As the World Turns and One Life to Live and Guiding Light and Santa Barbara are gone for ever and ever.

If Soaps remain a mystery to some, then football games are just as unintelligible to others. The Reader's Digest records the account of a young wife who, tiring of her husband's strict attention to the Sunday afternoon TV, decided to go visit her mother's house. There she found her father glued to the set. "Where is mother?" "Oh, she's probably over at your grandmother's house."

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We want to encourage everyone to voice his/her thoughts, knowledge, and opinions. Writing will be modified at the discretion of the Editor. No piece will be knowingly altered out of original intent.

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**JACG NEWSLETTER - VOLUME 4, NUMBER 10**  
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